

Serial No. 10/621,164
67008-066; S-5534**AMENDMENTS TO THE SPECIFICATION:**

Please replace the following numbered paragraphs with the following rewritten paragraphs:

[17] Figure 1 illustrates a general perspective view of a helicopter rotor system 10 which includes a hub assembly 12 to be driven for rotation about an axis of rotation 13. A plurality of main rotor blade assemblies 14 project substantially radially outward from the hub 12 and are supported therefrom in conventional fashion by an attachment 15. Any number of ~~blades~~blade assemblies 14 may be used with the rotor system 10. It should be understood that although a particular rotor system 10 is illustrated in the disclosed embodiment, other attachments, flex beams, main and tail rotors will benefit from the present invention.

[18] Each main rotor blade assembly 14 includes a root section 16, a central section 18 of aerodynamic shape, and a tip section 20, which culminates in a blade tip 22. The blade sections 16, 18, 20 cooperate with the hub 12 to define a blade radius R between the axis of rotation 13 and the blade tip 22. A blade chord C extends between a blade leading edge 24 and a blade trailing edge 26.

[19] The blade assembly 14 is fabricated with a selectively shaped tip section which includes a selected combination of rearward sweep, taper, dihedral, width, and anhedral. The tip section 20 operates to unload the blade tip 22, thereby producing a more uniform lift distribution throughout the span of the blade and also producing a more uniform downwash effect, as well as decreasing the power required to drive the rotor 10 and thereby increasing lift and hover performance. The tip section preferably reduces the intensity of the tip trailing edge vortex and also directs or displaces the tip trailing edge vortex so that it causes minimal interference on the following blade. The rotor blade tip section 20 preferably includes an anhedral form, however, other angled and non angled forms such as cathedral, gull, bent, and others will benefit from the present invention.

[20] Referring to Figure 2, each blade assembly 14 includes a main blade spar 30 which extends from the root portionsection 16, through the central portionsection 18, and into the tip section 20 preferably prior to an anhedral droop 32 (Figure 3). The main blade spar 30 is

Serial No. 10/621,164
67008-066; S-5534

a structural member having high torsional and axial stiffness and strength, and in the preferred embodiment is made of a high strength composite material. However, the spar may also be made from a high strength metal, such as titanium. The blade assembly 14 extending from the root portion section 16 and through the length of the central portion section 18 preferably include a core material covered by a composite skin (illustrated schematically at 31; Figure 3) which defines the aerodynamic shape of the blade as generally known.

[22] The splice cap 34 is made of a wear-resistant material, such as nickel to provide abrasion protection for the tip section 20. The splice cap 34 also provides control of airfoil tolerances of the tip section 22. The splice cap 34 preferably attaches to an open end 44 of the generally C-shaped tip spar 36 and overlays the forward edges of the skins 42, ~~4440~~, 42. The splice cap 34 and tip spar 36 mount directly to the main rotor main blade spar 30 (Figure 3) to provide a rigid structure which supports the loads induced by the tip section 20 with a minimum of structural components. The splice cap 34 and tip spar 36 are preferably bonded to the main rotor main blade spar 30 and additionally may include redundant fasteners. An adhesive material, such as epoxy film adhesive, is a preferred bonding agent.